



# Setting Up the Dell™ DR Series System on Symantec NetBackup to Use Virtual Synthetic Backup

Dell Engineering  
February 2014

## Revisions

Date	Description
February 2014	Initial release

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## Executive summary

This paper provides information about how to set up the Dell DR Series system to run Virtual Synthetic Backup on NetBackup (NBU). This document is a quick reference guide and does not include all DR Series system deployment best practices.

See the DR Series Deduplication Appliance documentation other data management application best practices whitepapers for additional information.

For additional data management application (DMA) best practice whitepapers, see the DR Series system documentation at <http://www.dell.com/support/Manuals/us/en/19/Product/powervault-dr4100>.

**Note:** The DR Series system and NetBackup screenshots used in this document may vary slightly, depending on the DR Series system firmware version and NetBackup version used.

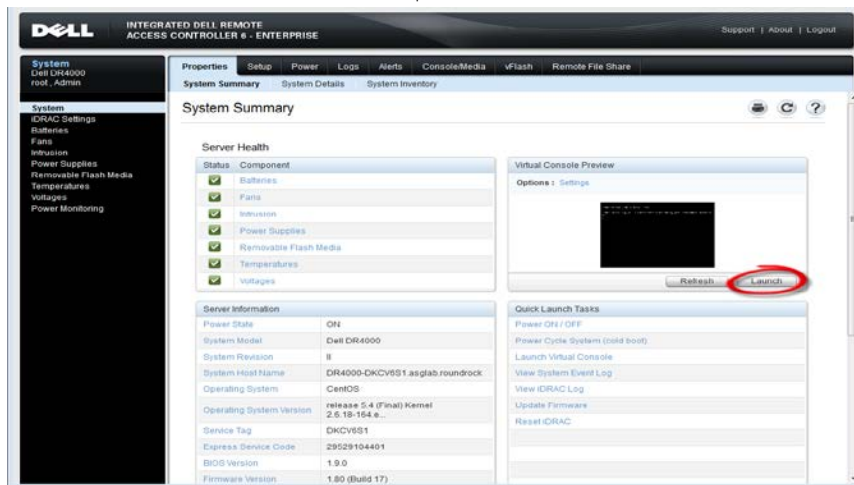
### Terminology

- **Dedupe backup:** In this mode, deduplication is done on the client and then the deduplicated packets are sent to the DR Series system.
- **Passthrough backup:** In this mode, deduplication is done on the DR Series system after data is transferred from the client.
- **Synthetic backup:** A synthetic backup is identical to a regular full backup in terms of data, but it is created when data is collected from a previous, older full backup and assembled with subsequent incremental backups.
- **Virtual Synthetic Backup/Optimized synthetic Backup:** A synthetic backup that avoids the need to move data across the network. The media server tells the storage server which full and incremental images to use to create the synthetic image.

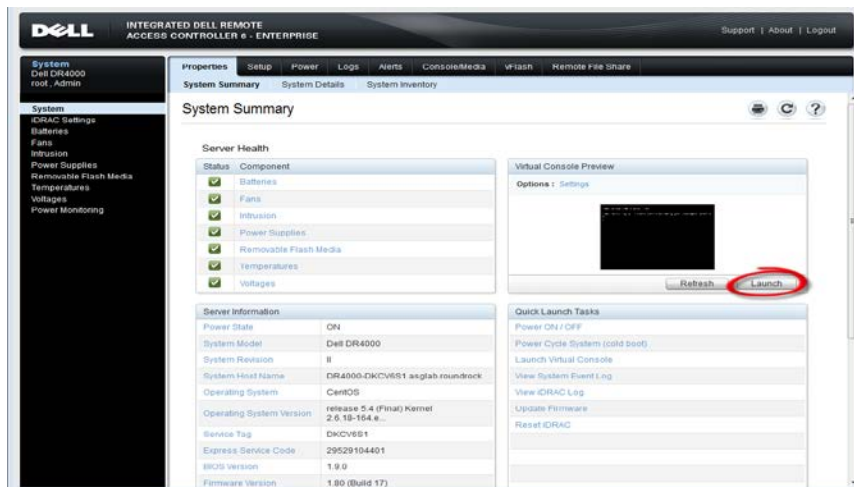


# 1 Install and configure the DR Series system

1. Rack and cable the DR Series system and power it on.
2. Initialize the DR Series system. Refer to the *Dell DR Series System Administrator Guide* under the following topics: "iDRAC Connection," "Logging in and Initializing the DR Series System," and "Accessing iDRAC6/iDRAC7 Using RACADM".
3. Log in to iDRAC using the default address **192.168.0.120**, or the IP that is assigned to the iDRAC interface. Use the user name and password of "**root/calvin**".



4. Launch the virtual console.



5. After the virtual console is open, log in to the system with the user **administrator** and the password **St0r@ge!** (the "0" in the password is the numeral zero).

```
Debarina release 1 (EAR-1.00.00) Build: 32858
Kernel 2.6.18-164.el5 on an x86_64

localhost login: administrator
Password: St0r@ge!
```

6. Set the user-defined networking preferences.

```
Would you like to use DHCP (yes/no) ?
Please enter an IP address:
Please enter a subnet mask:
Please enter a default gateway address:
Please enter a DNS Suffix (example: abc.com):
Please enter primary DNS server IP address:
Would you like to define a secondary DNS server (yes/no) ?
Please enter secondary DNS server IP address:
```

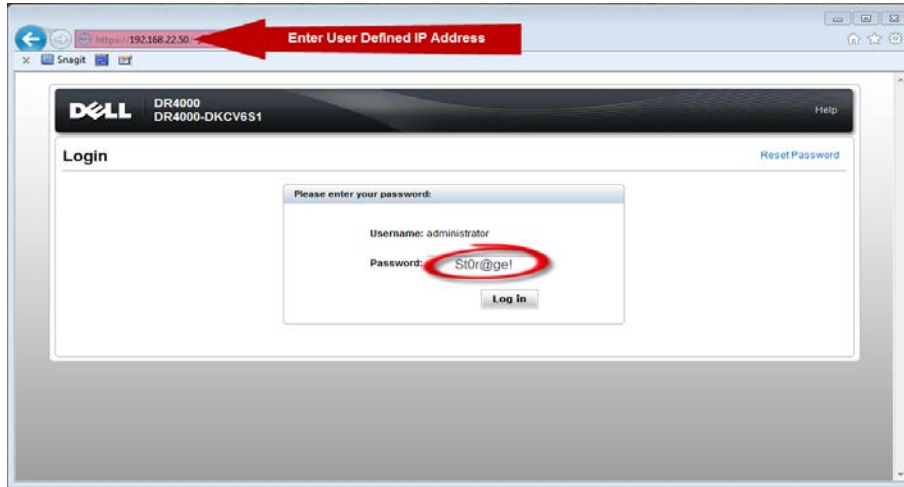
7. View the summary of preferences and confirm that it is correct.

```
=====
                          Set Static IP Address
IP Address      : 10.10.86.108
Network Mask    : 255.255.255.128
Default Gateway : 10.10.86.126
DNS Suffix      : idmdemo.local
Primary DNS Server : 10.10.86.101
Secondary DNS Server : 143.166.216.237
Host Name       : DR4000-5

Are the above settings correct (yes/no) ? _
```



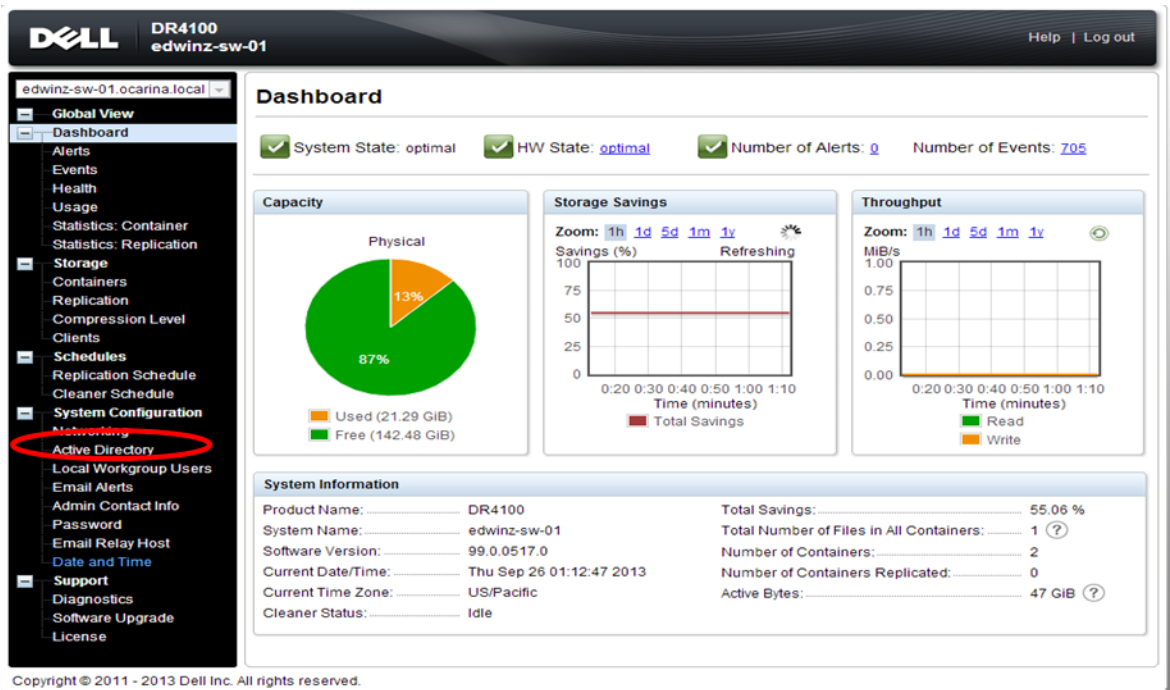
8. Log on to the DR Series system administrator console using the IP address you just provided for the DR Series system, the username **administrator**, and the password **St0r@ge!** (the "0" in the password is the numeral zero).



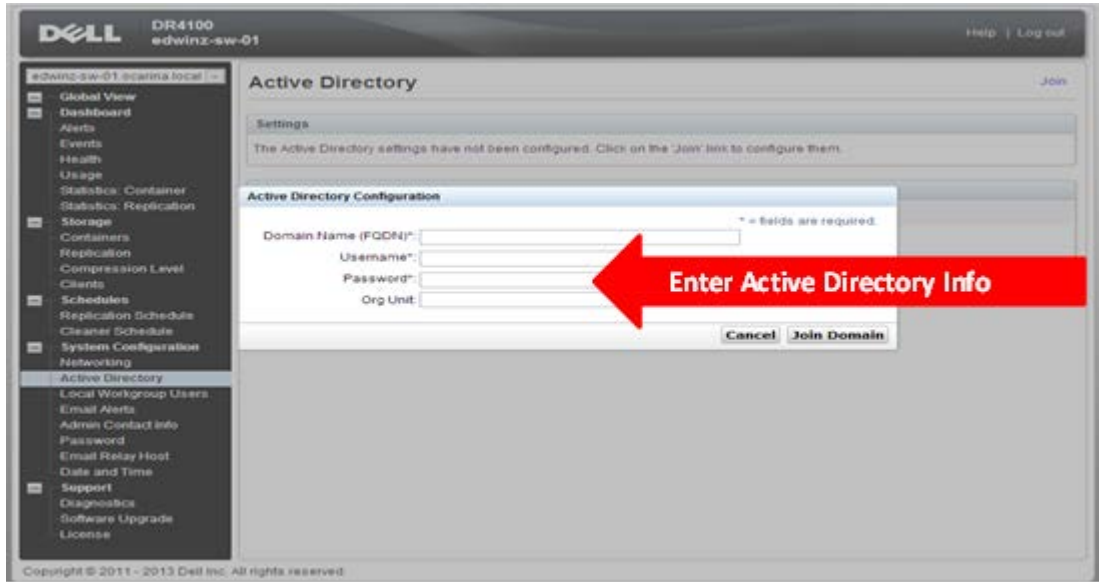
9. Join the DR Series system to Active Directory.

**Note:** If you do not want to add the DR Series system to Active Directory, see the *DR Series System Owner's Manual* for guest login instructions.

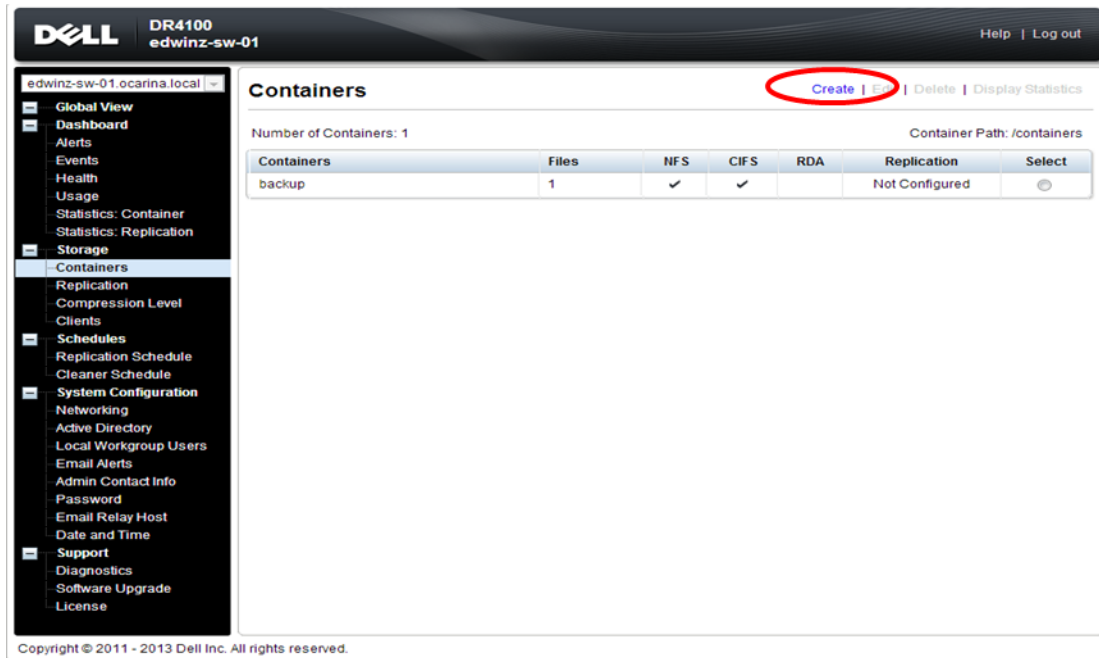
- a. Select **Active Directory** from the navigation panel on the left side of the management interface (also known as the dashboard).



b. Enter your Active Directory credentials.

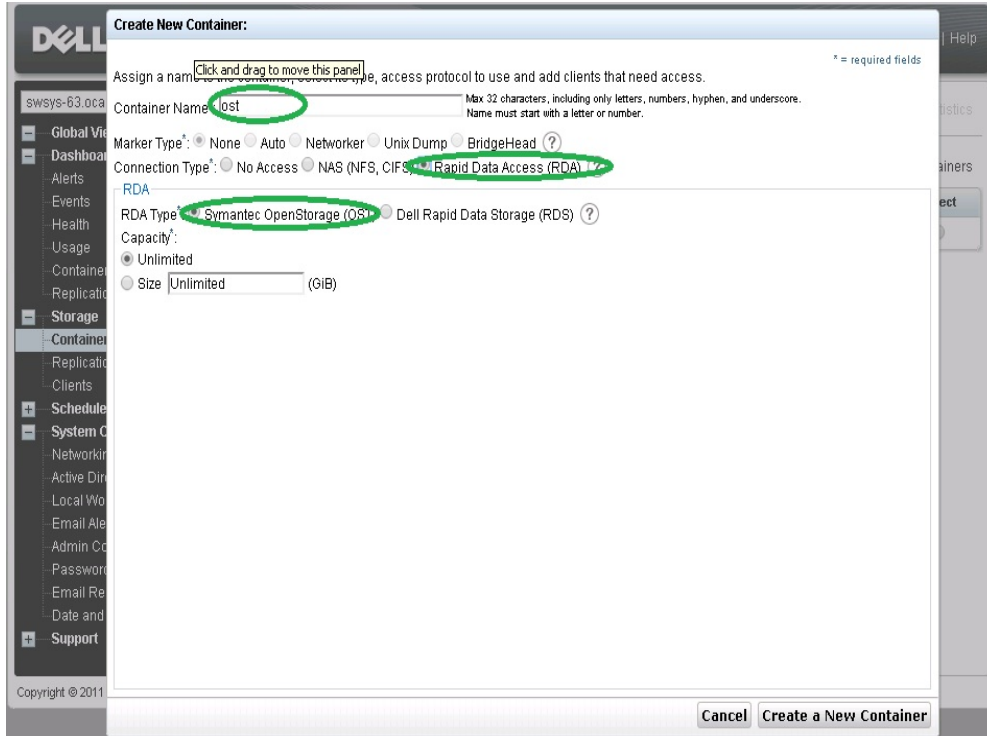


10. Create an **OST** container. Select **Containers** in the navigation panel on the left side of the dashboard, and then click the **Create** at the top of the page.

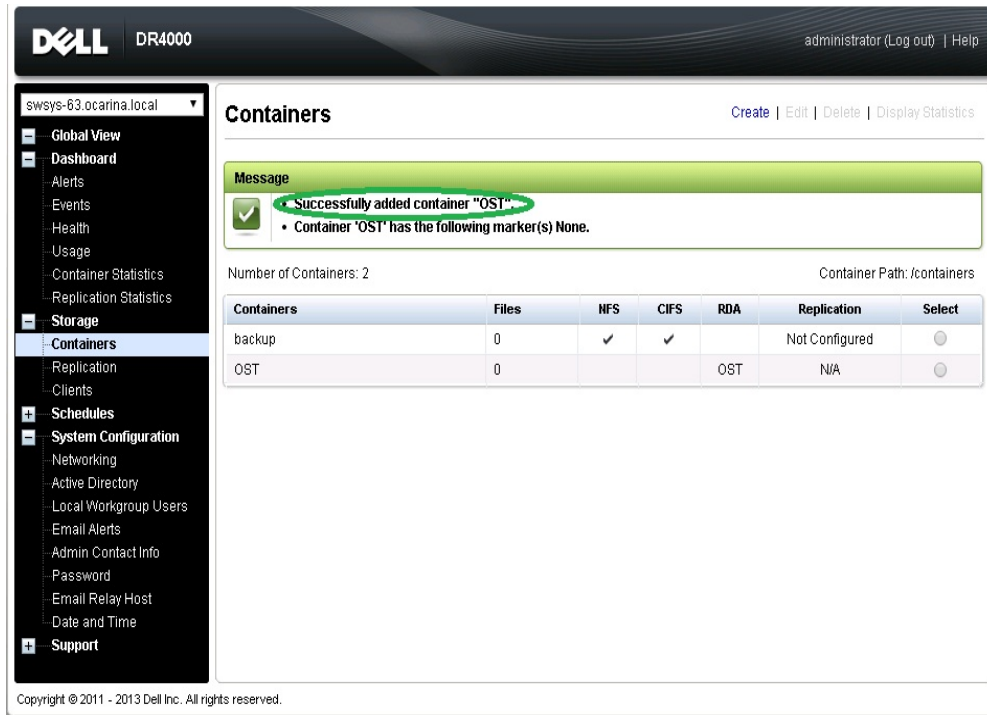




- a. Enter a container name and select the connection type as RDA. Then select the RDA type as Symantec OpenStorage (OST).



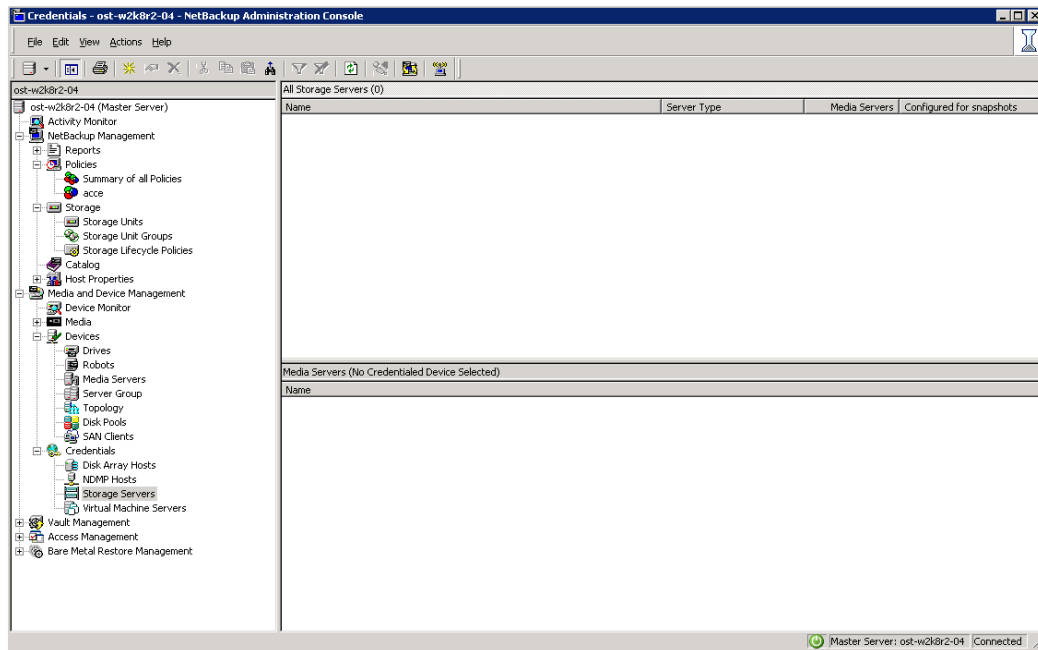
- b. Click **Create a New Container** and confirm that the container was added.



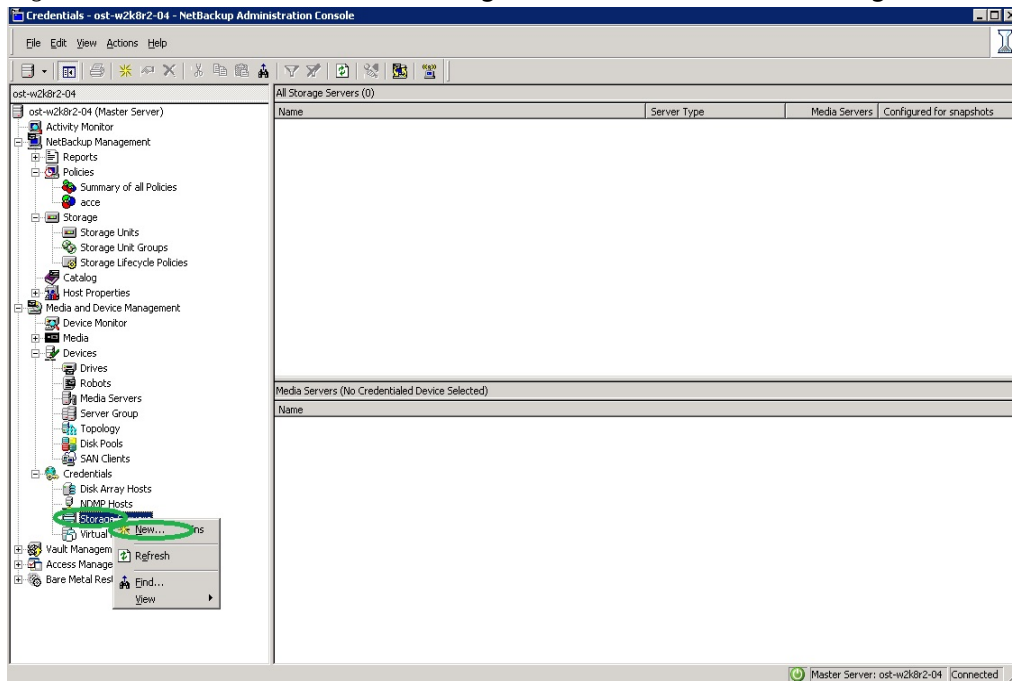
## 2 Set up NetBackup for Virtual Synthetic Backup on a Windows or Linux client

**Note:** Make sure that the Dell OST plugin is installed on the DMA client that is used for NetBackup (NBU) backup.

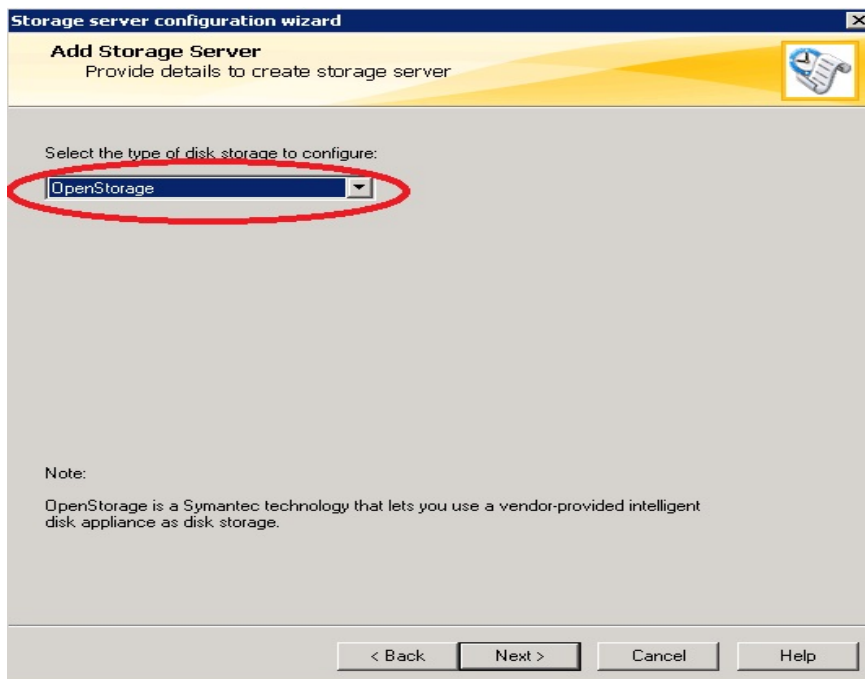
### 1. Launch NBU Console



2. Right-click on **Media and Device Management -> Credentials -> Storage Server**. Click **New**.



3. In the **Storage server configuration wizard** dialog box, choose **OpenStorage** from the list and click **Next**.



4. Under **Storage server name**, enter the DR Series system IP address or hostname. Under **Storage server type**, enter **DELL**.
5. In the **Media server** list, select the media server and enter the user name: **backup\_user**, password: **St0r@ge!**

**Storage Server Configuration Wizard**

**Add Storage Server**  
Provide details to create storage server

Storage server details:

Storage server name:

Use Symantec's OpenStorage plug-in for network-controlled storage server

Storage server type:

Select a media server that has the vendor's OpenStorage plug-in installed. NetBackup will query the storage server for its capabilities by sending the probe through the media server you specify.

Media server:

Enter credentials:

User name:

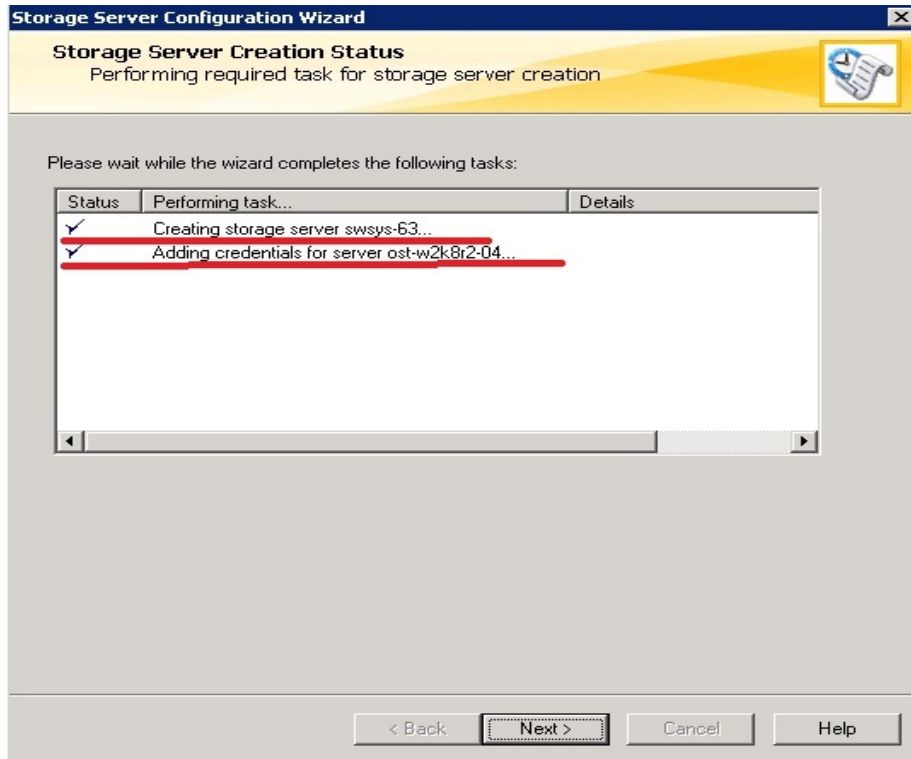
Password:

Confirm password:

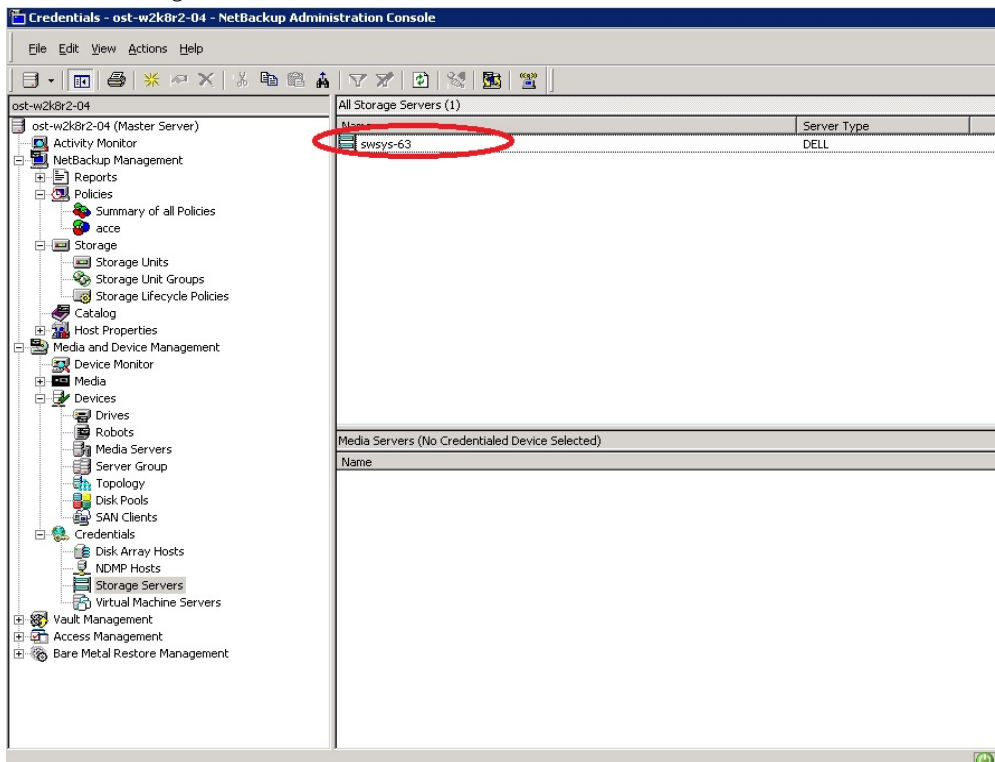
< Back   Next >   Cancel   Help



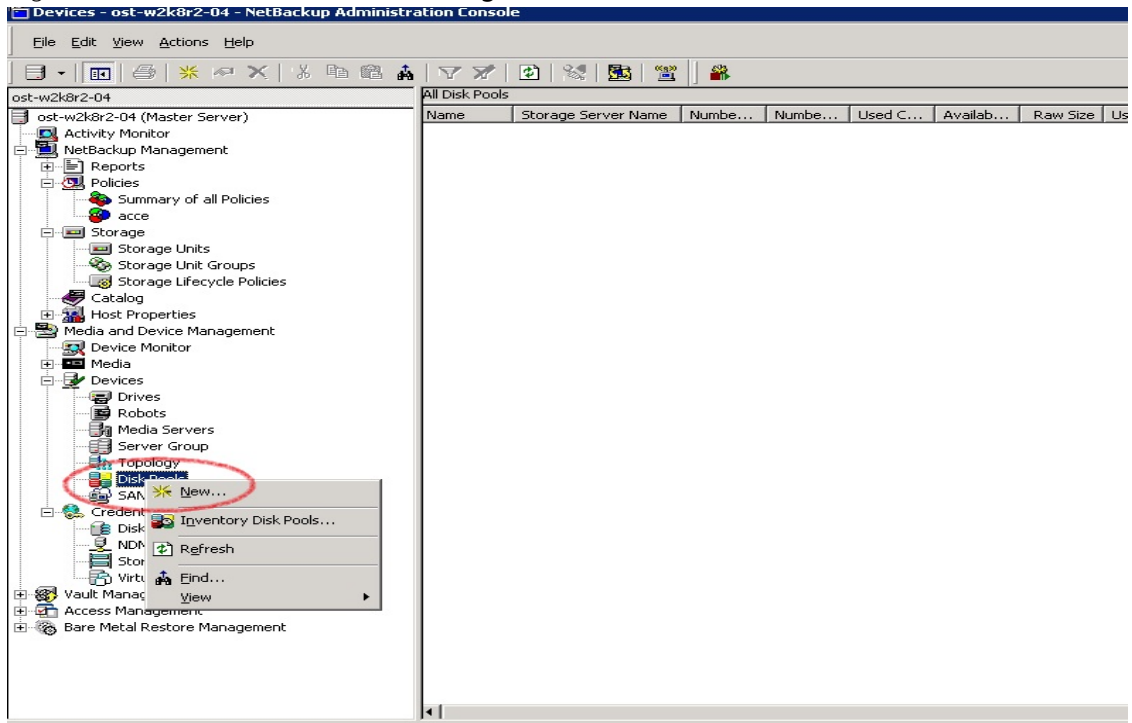
6. Make sure the storage server creation is successful and that authentication is fine.



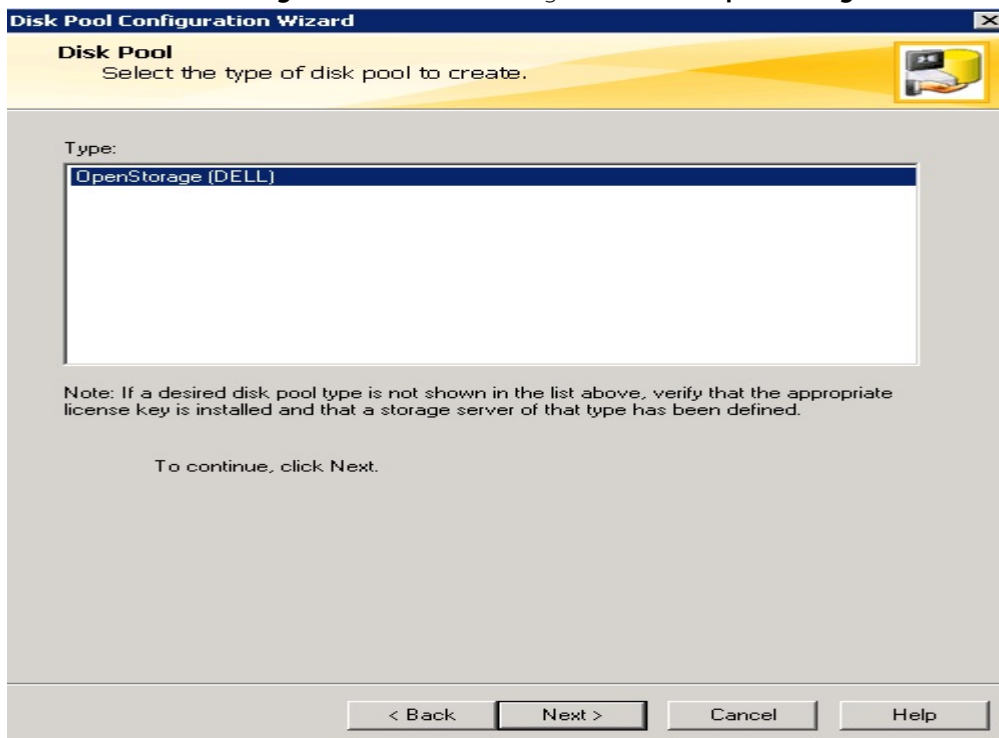
7. Created storage server should be listed.



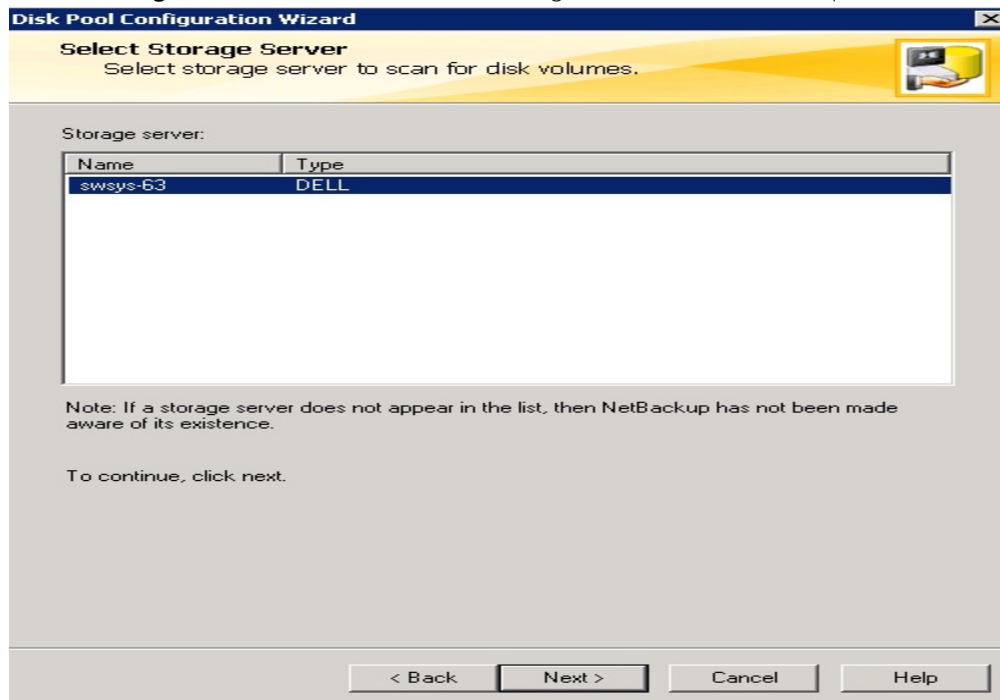
8. Right-click on **Media and Device Management -> Devices -> Disk Pool**. Click **New**.



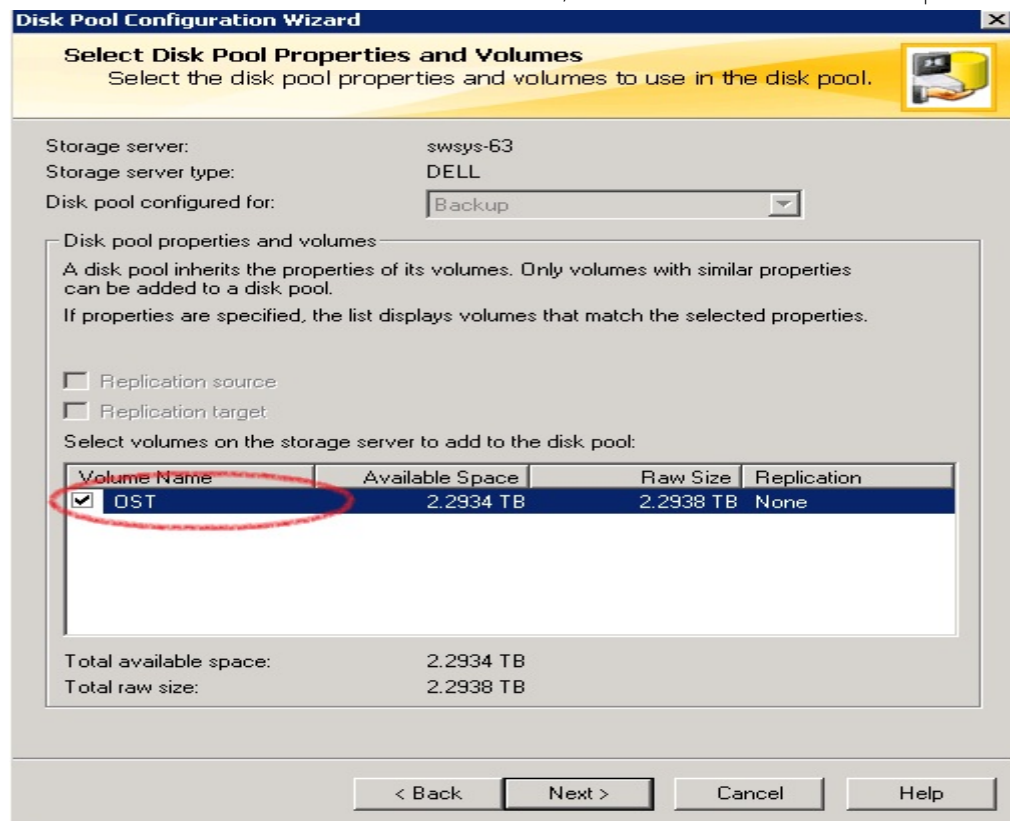
9. In the **Disk Pool Configuration Wizard** dialog box, select **OpenStorage (DELL)** for **Type**.



10. In the **Storage server** list, select the DR storage server created in steps 1-6.



11. Select the **OST** container created in **Section 1**, which will be used for backup.



12. Enter the **Disk pool name**.

**Disk Pool Configuration Wizard**

**Additional Disk Pool Information**  
Provide additional information and verify disk pool configuration details.

Storage server: swsys-63  
Storage server type: DELL  
Disk pool configured for: Backup

Disk pool size:  
Total available space: 2.2934 TB  
Total raw size: 2.2938 TB

Disk pool name: **DST**

Comments:

High water mark: 98 %      Low water mark: 80 %

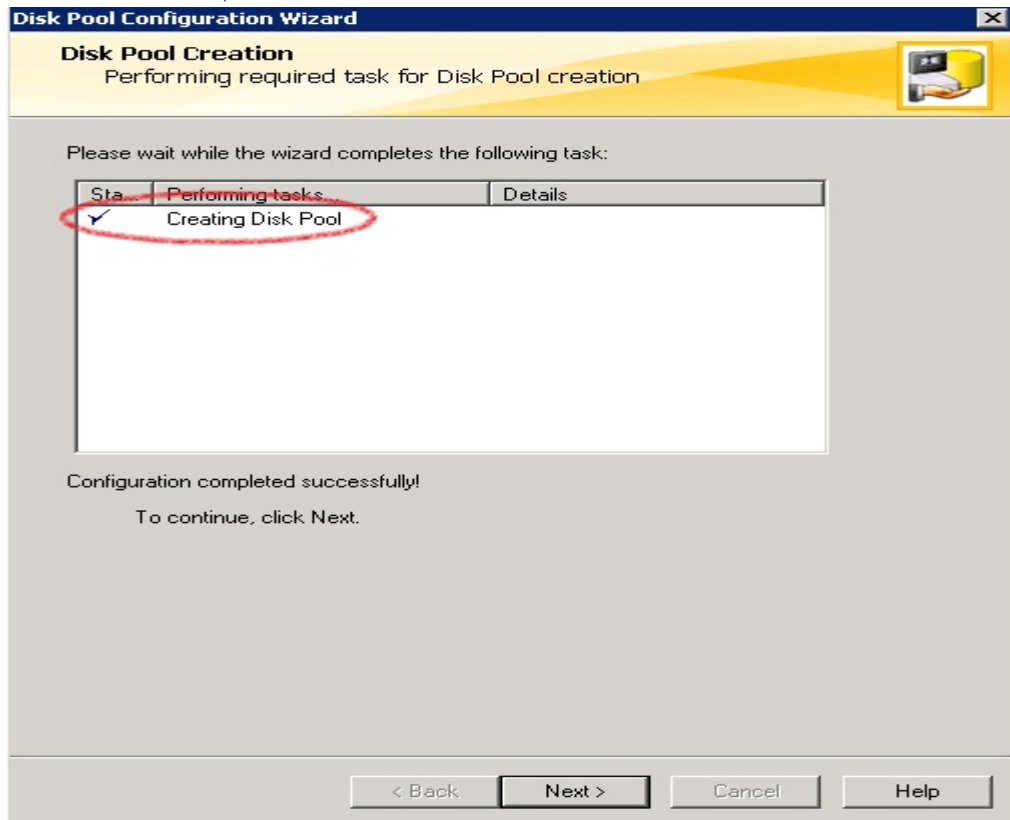
Maximum I/O streams:  
Concurrent read and write jobs affect disk performance.  
Limit I/O streams to prevent disk overload.  
 Limit I/O streams      -1 per volume

< Back    Next >    Cancel    Help

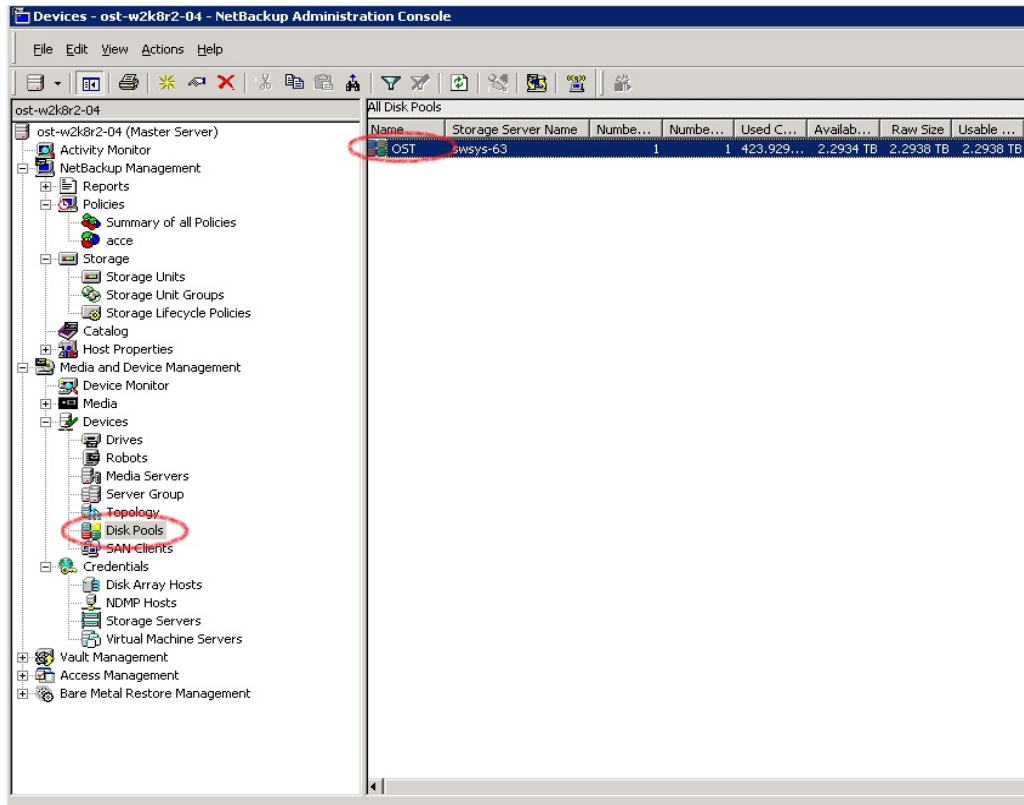




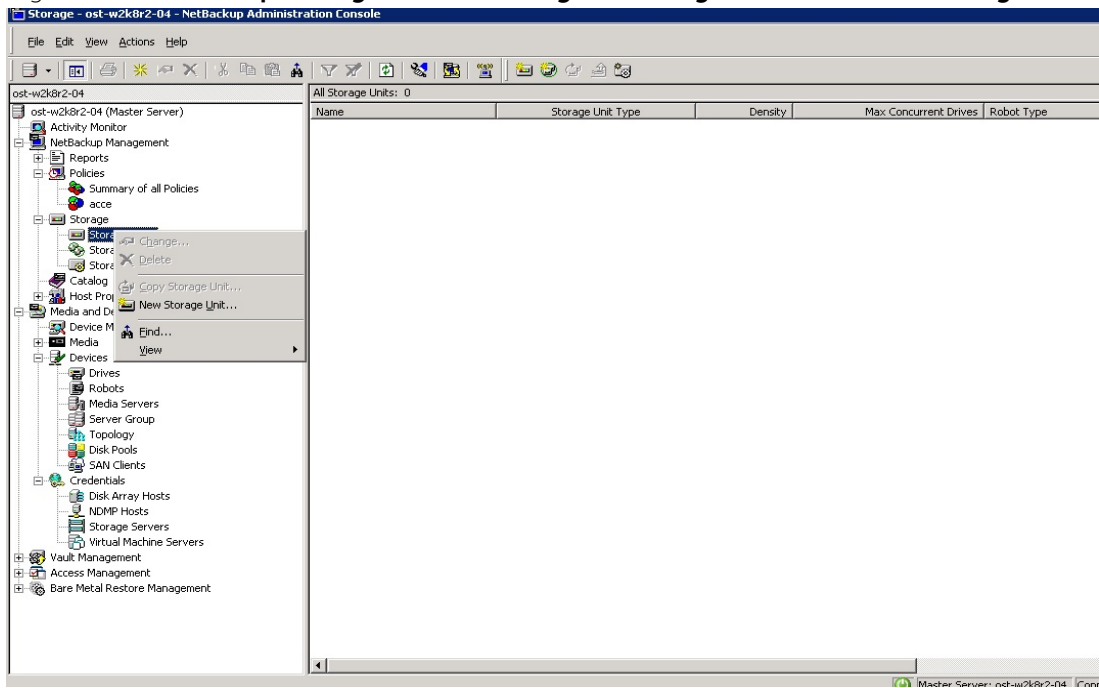
13. Confirm that disk pool creation is successful.



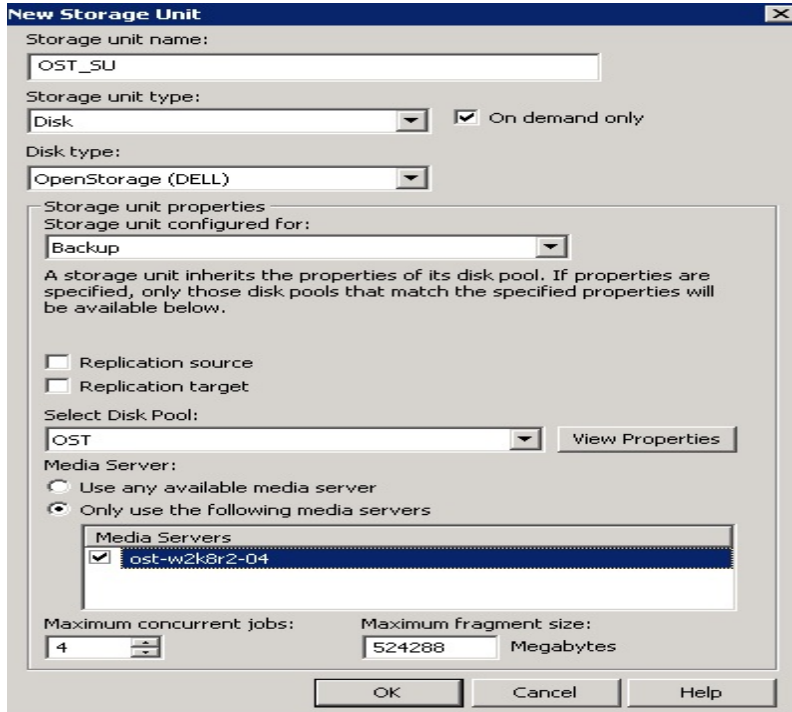
14. Make sure the disk pool is listed.



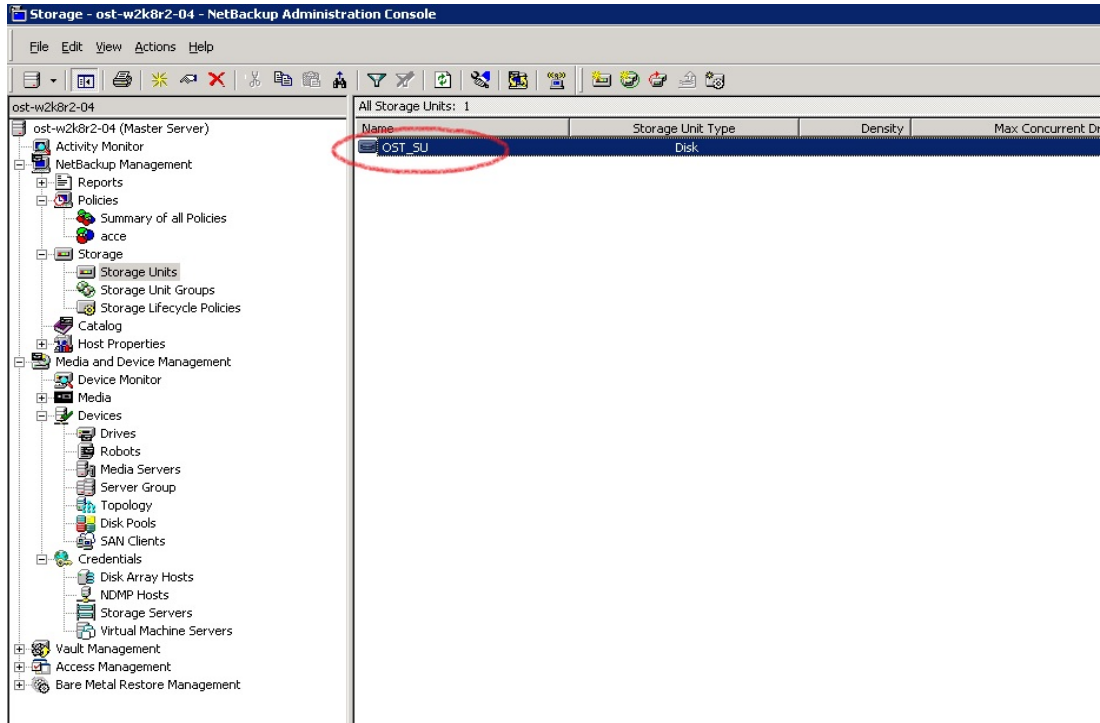
15. Right click **Netbackup Management -> Storage -> Storage Unit**. Click **New Storage Unit**.



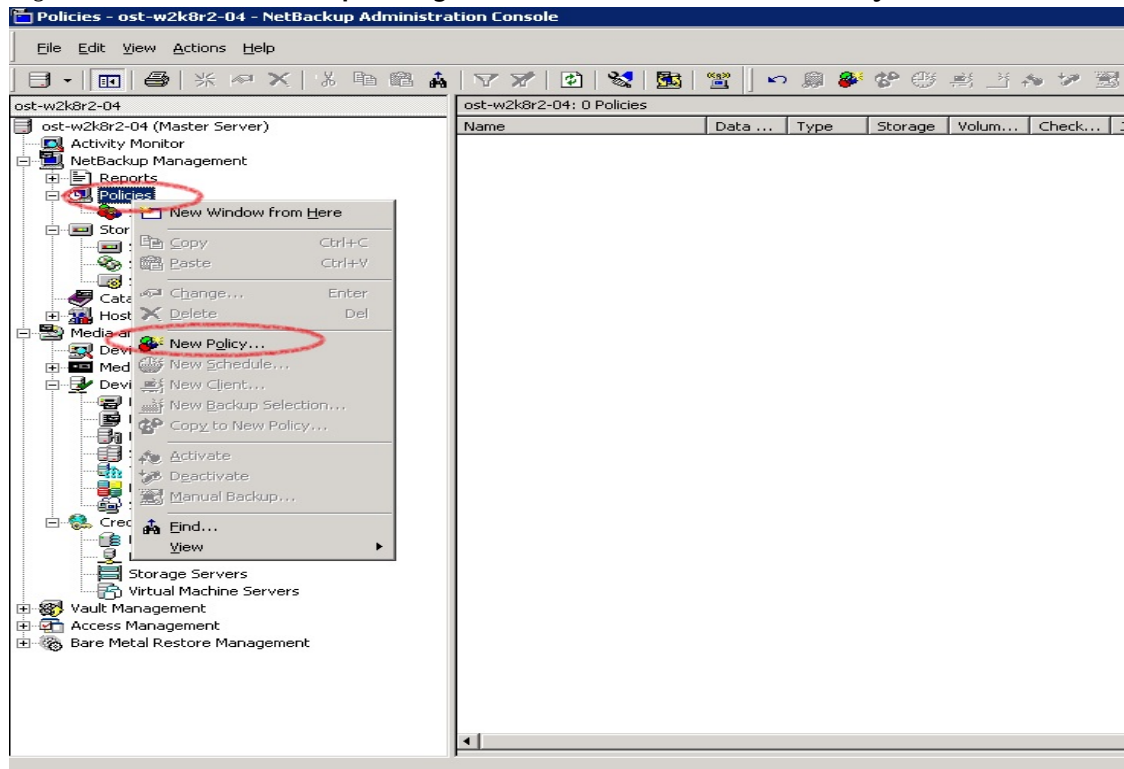
- In **New Storage Unit**, enter a **Storage unit name**, **Storage unit type** as **Disk**, **Disk type** as **OpenStorage (DELL)**, **Storage unit configured for** as **Backup**. Select the disk pool that was created in steps 7-13, and select the media server that will be used for backup.



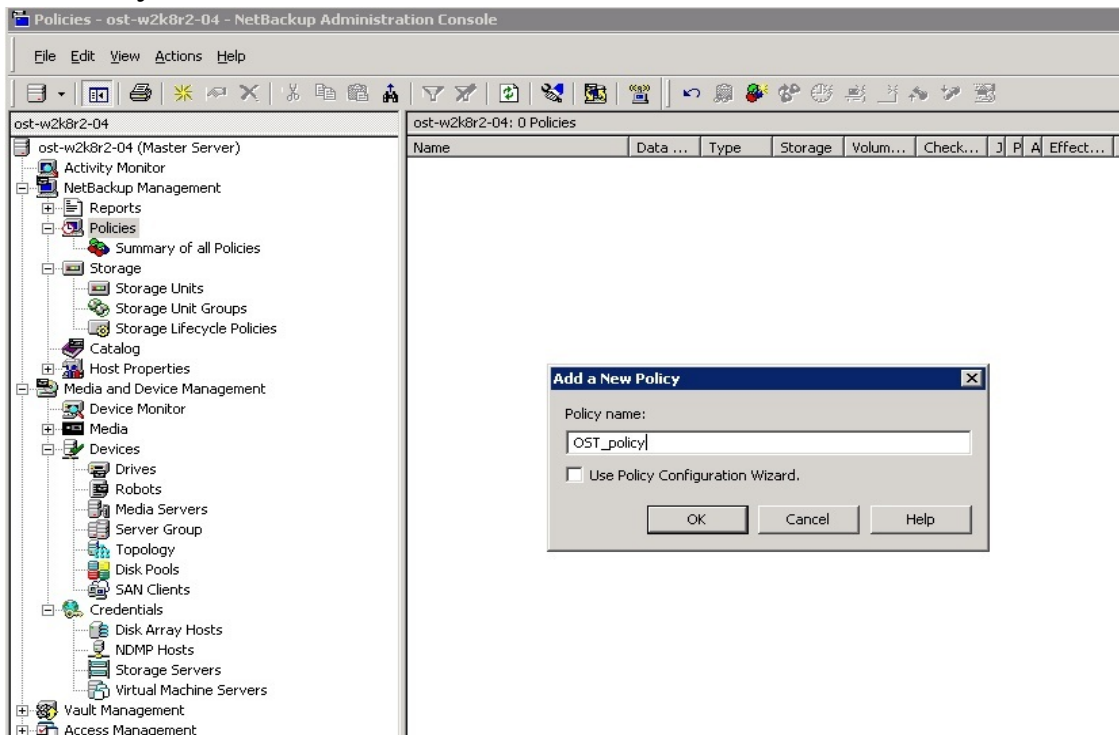
- Make sure that the **Storage Unit** is listed after creation.



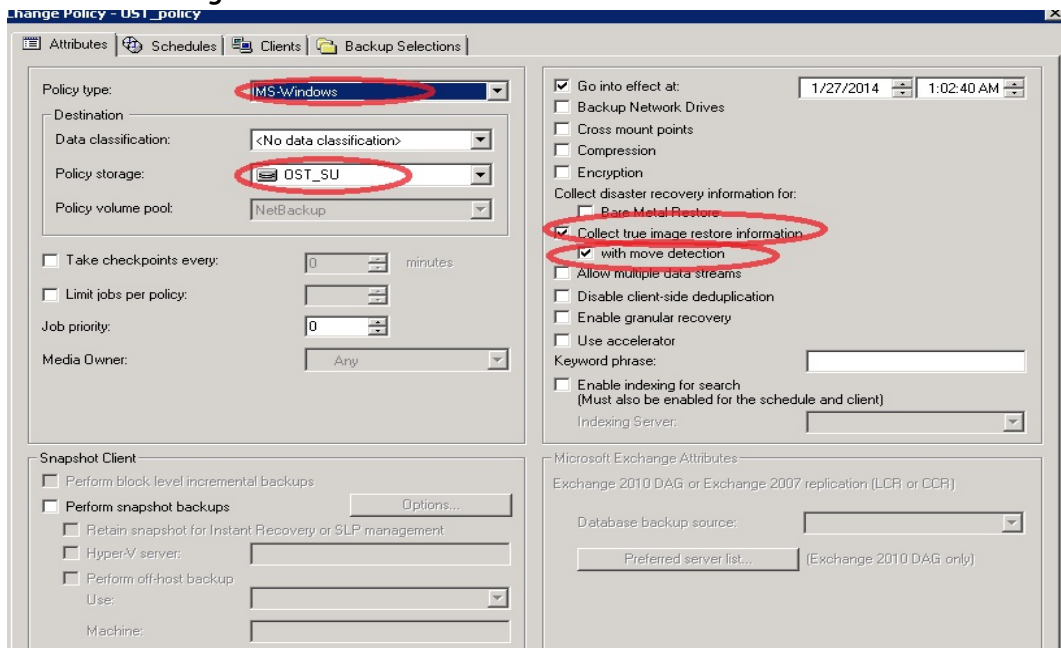
18. Right click under **Netbackup Management** -> **Policies**. Click **New Policy**.



19. Enter **Policy name**.

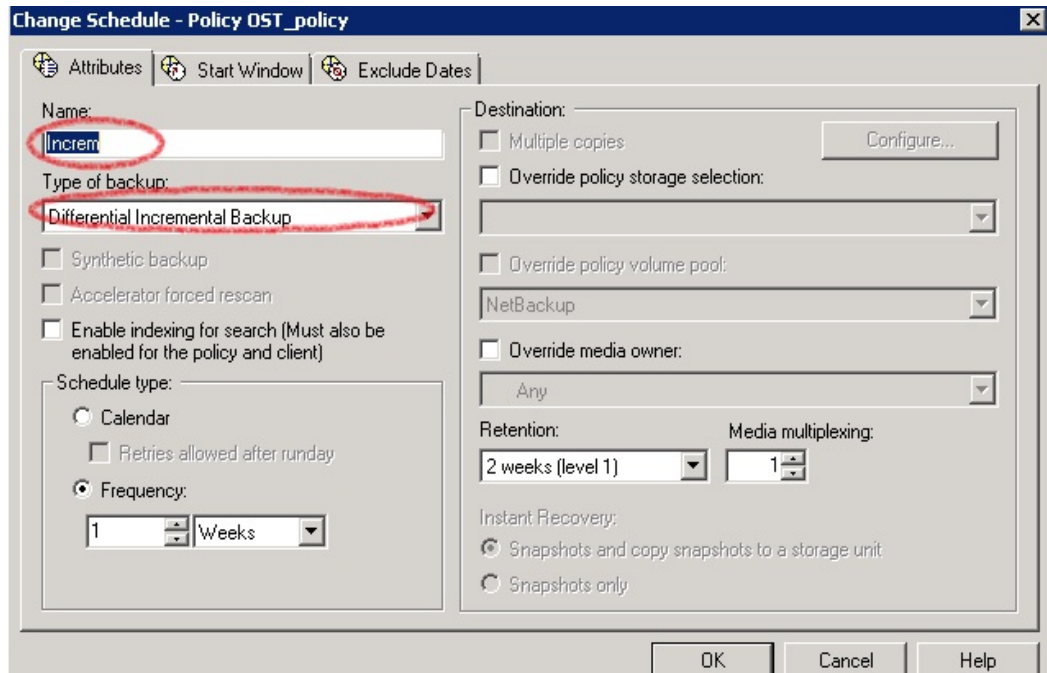
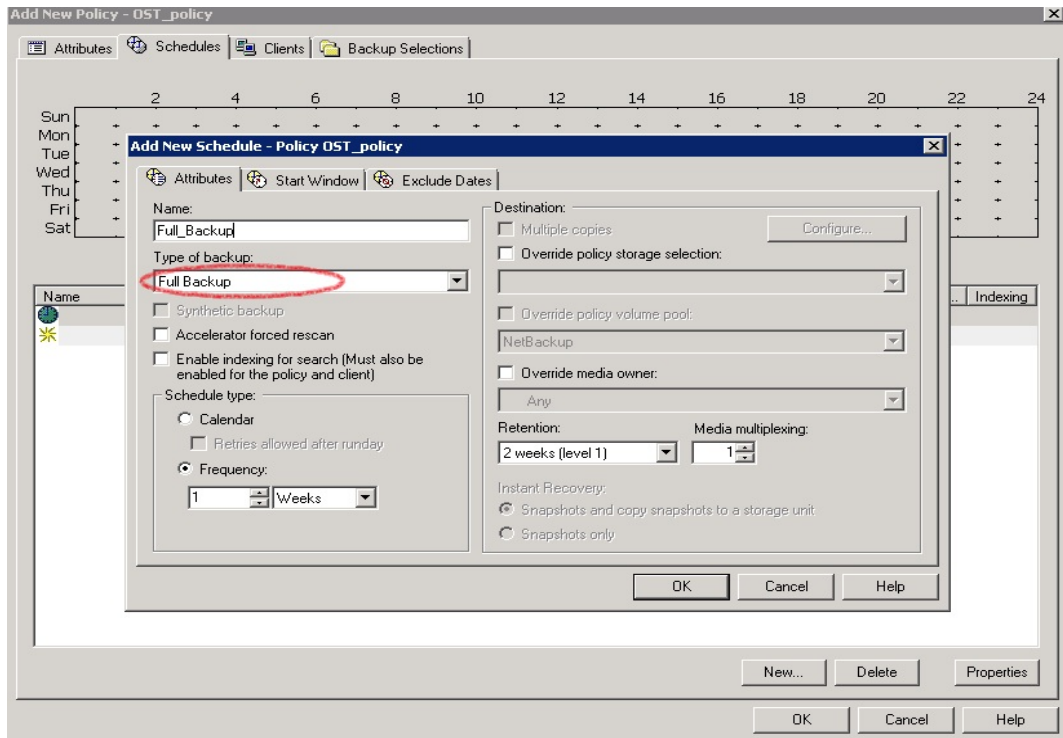


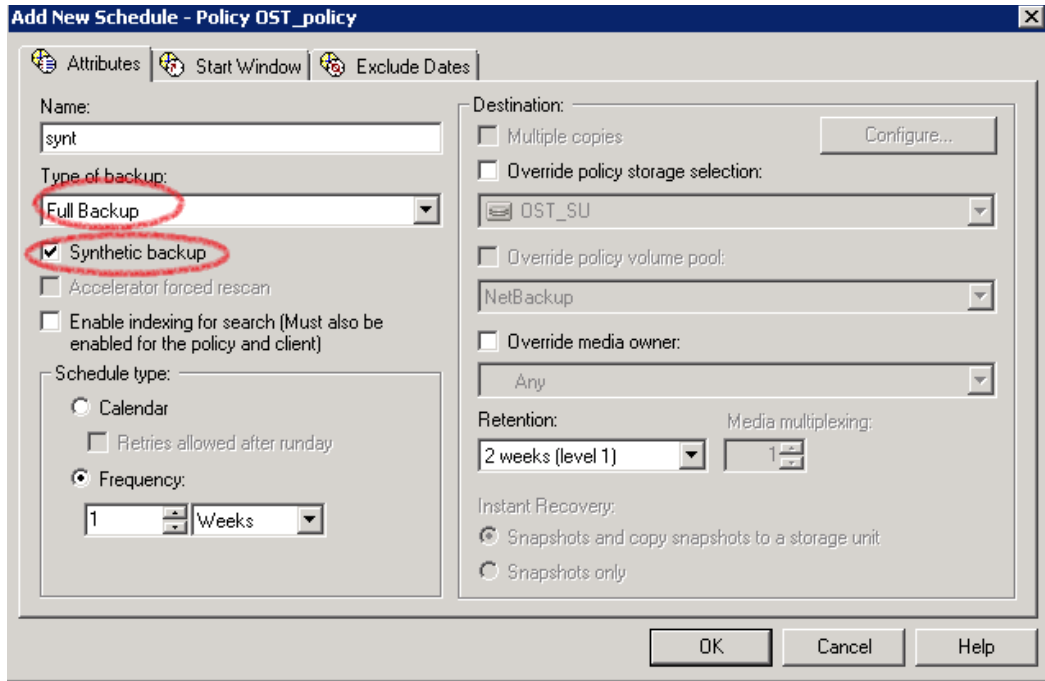
20. Enter policy attributes under **Attributes** tab: **Policy type** as **MS-Windows** (for Windows) or **Standard** (for Linux); **Policy storage** as the DR storage unit that was created in steps 14-16; enable **Collect true image restore information** and check **with move detection**.



21. On the **Schedules** tab, create three schedules: one for **Full Backup**, a second one for either **Differential Incremental Backup** or **Cumulative Incremental Backup**, and a third one for **Full Backup** with the **Synthetic backup** option enabled. The schedule should be such that first a full backup runs, then an incremental backup, and finally a synthetic full backup.



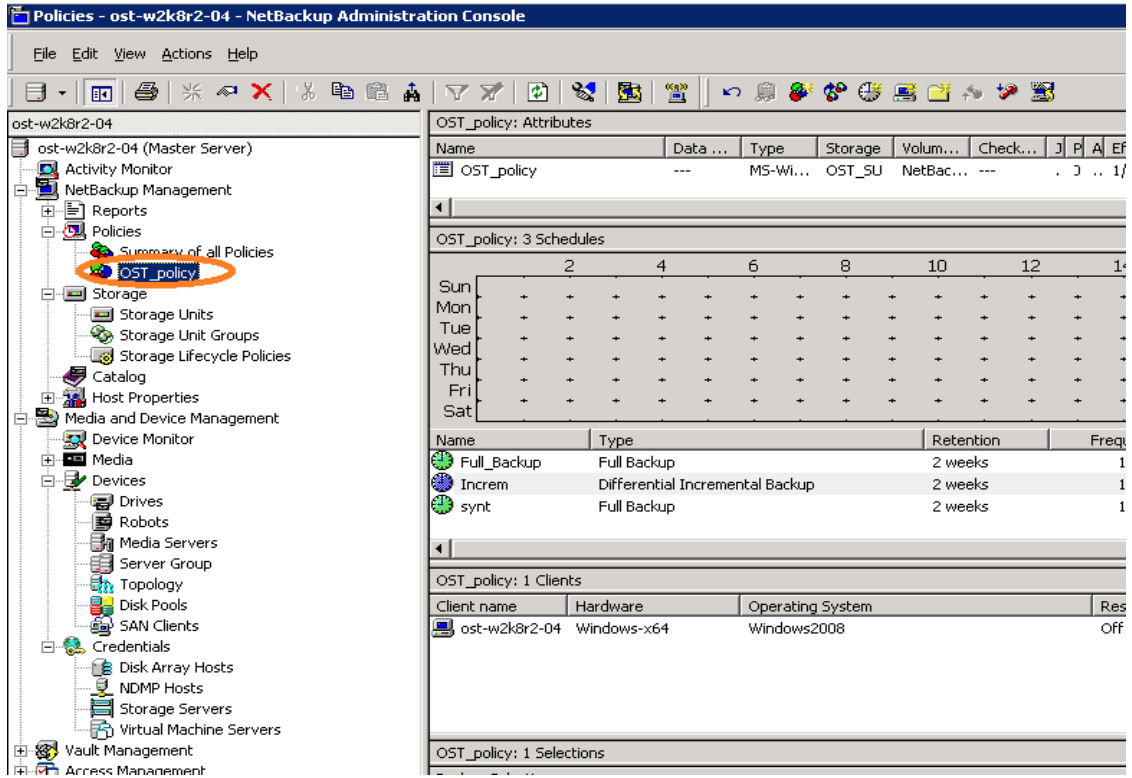




22. On the **Clients** tab, select the client(s) from which data is backed up.
23. On the **Backup Selection** tab, provide the data set that needs to be backed up.



24. Make sure that the policy is created successfully.



25. Activate the policy before proceeding to backup. Right click the policy and click **Activate**.





### 3 Back up using NetBackup virtual synthetic backup

1. Before running backup, make sure which backup mode you want to use: **Passthrough** or **Dedupe**. This can be done by setting the RDA mode in the DR Series system command line interface (CLI).

```
swws-63.ocarina.local - PuTTY
[root@SWSYS-63 ~]# rda --show --clients

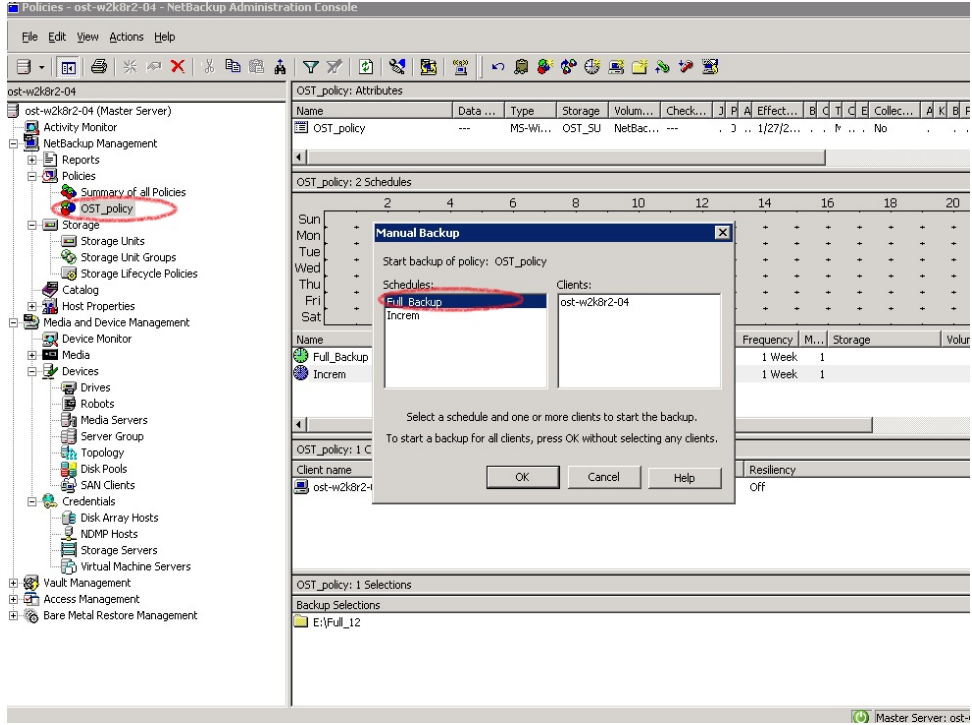
RDA Client(s)          Type  Plugin  OS              Backup Software  Last Access
nection(s)  Mode
OST-W2K8R2-04         RDS   2.1.243  Windows Server 2008 R2  NetVault 9.2 Build 16  Aug 27 02:35:56
                Default
OST-W2K8R2-02         OST   2.1.270  Windows Server 2008 R2  NetBackup 7.500.12     Aug 27 02:35:29
                Dedupe
Sree-Win-01           OST   2.1.243  Windows Server 2008 R2  NetBackup 7.1.2011     Aug 27 02:35:50
                Dedupe
Srinivas-W2K8-2       OST   2.1.215  Windows Server 2008 R2  NetBackup 7.0.2010     Aug 27 02:36:07
                Dedupe

[root@SWSYS-63 ~]# rda --update_client --name OST-W2K8R2-04 --mode dedupe
Rapid Data Access (RDA) client OST-W2K8R2-04 with mode Dedupe added successfully.
[root@SWSYS-63 ~]# rda --update_client --name OST-W2K8R2-04 --mode passthrough
Rapid Data Access (RDA) client OST-W2K8R2-04 with mode Pass-through updated successfully.
[root@SWSYS-63 ~]#
```

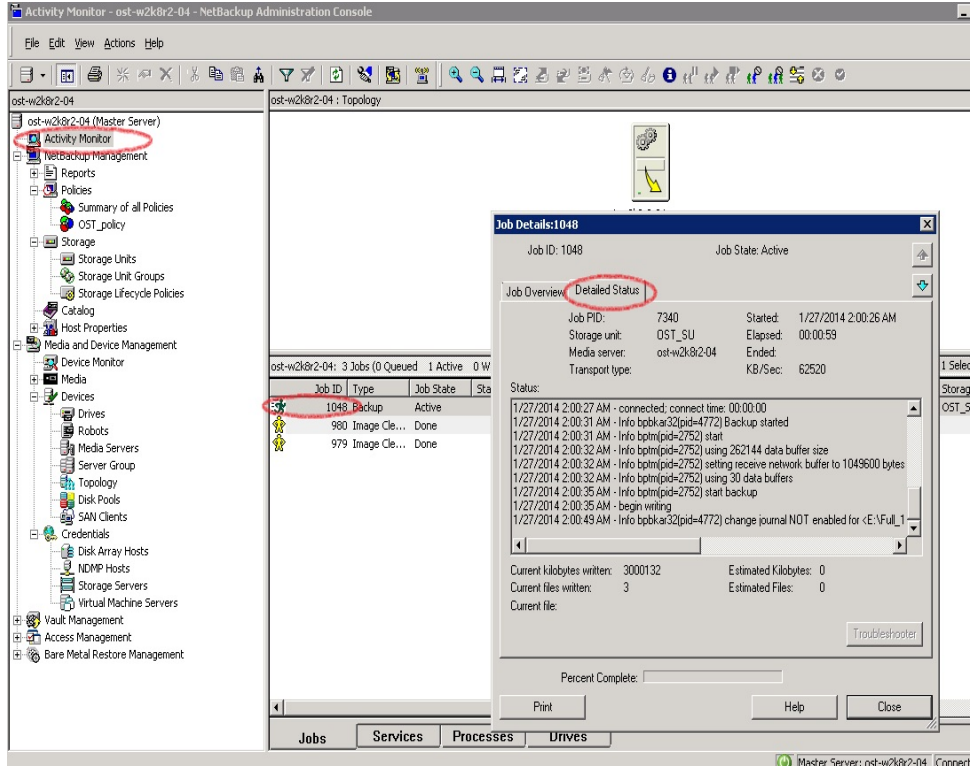
**Note:** You can schedule the backups or run them at a convenient time. This procedure uses a manual backup configuration.



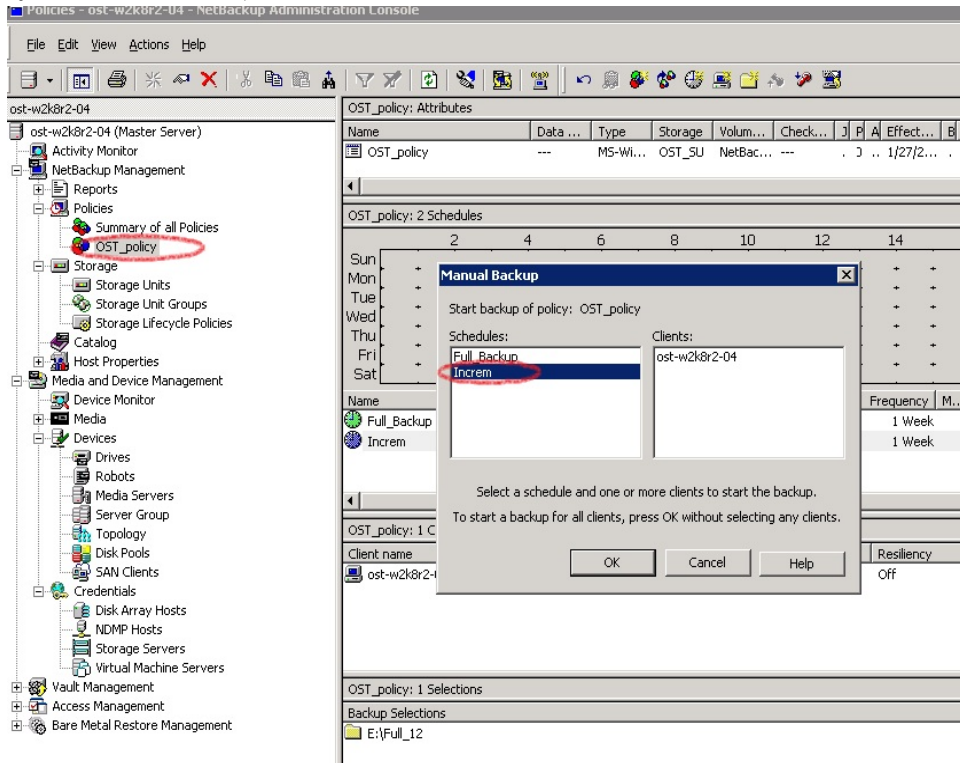
2. Under **Netbackup Management -> Policies**, right click on the policy created in the previous procedure and select **Manual Backup** to run the backup manually.



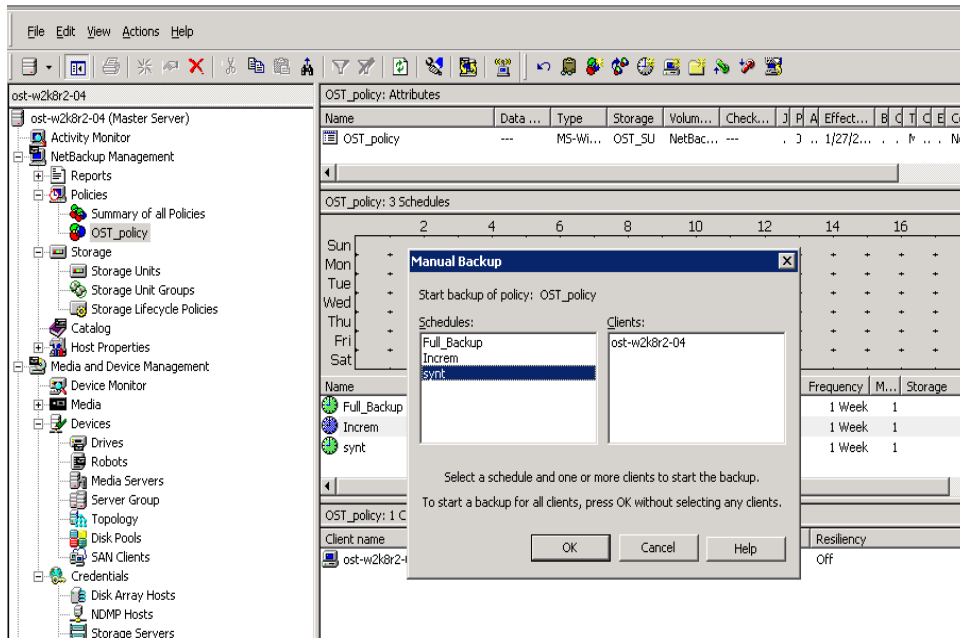
3. Run a manual **Full Backup** and check the status in the Activity Monitor. Double-click on the job to see the detailed status.



- Run one or more configured **Incremental** backups to generate a set of backups that can make a synthetic full backup.



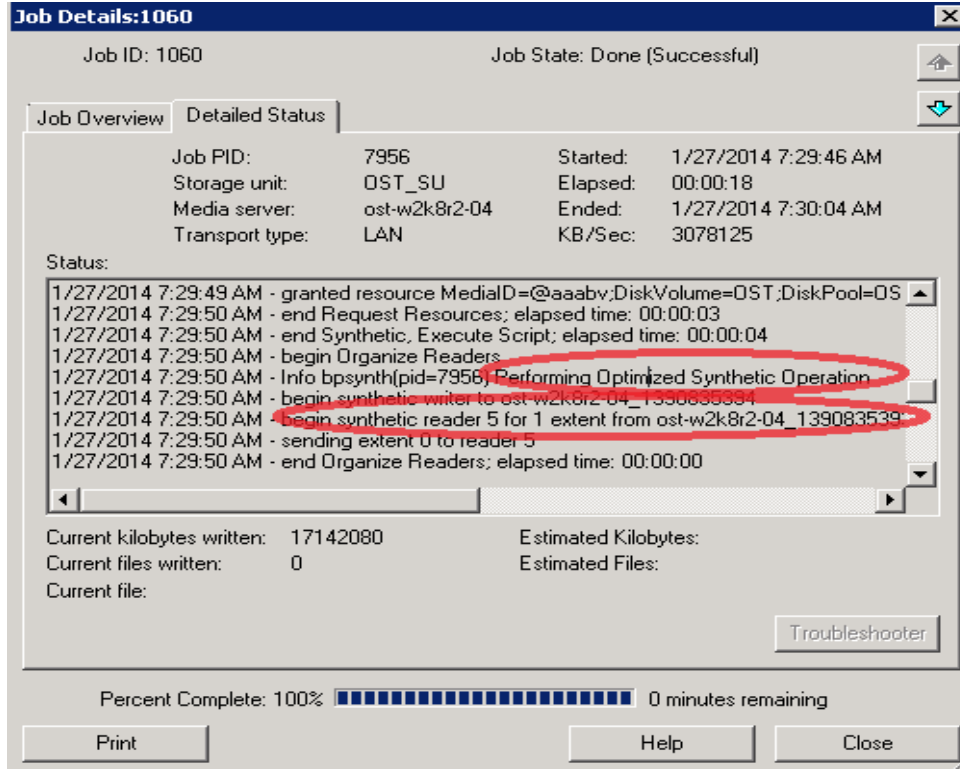
- Then finally run a **Full Backup** with **synthetic backup** option enabled.



- Confirm that the final full backup is synthesized.



- Throughput of final backup should be much faster as it synthesizes the full and incremental backups.



## 4 Monitor deduplication, compression, and performance

After backup jobs have run, the DR Series system tracks capacity, storage savings, and throughput on the DR Series system dashboard. This information is valuable in understanding the benefits of the DR Series system.

**Note:** Deduplication ratios increase over time. It is not uncommon to see a 2-4x reduction (25-50% total savings) on the initial backup. As additional full backup jobs are completed, the ratios will increase. Backup jobs with a 12-week retention will average a 15x ratio, in most cases.

